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A

BRIEF HISTORICAL NOTICE

OF THE

ORIGIN AND PROGRESS OF

INTERNATIONAL HYGIENE.

A PAPER

PRESENTED AT THE NINTH ANNUAL MEETING OF THE

AMERICAN PUBLIC HEALTH ASSOCIATION,

SAVANNAH, GA., NOV. 29 TO DEC. 3, 1881.

BY

JAMES L. CABELL, A.M., M.D., LL.D.,

UNIVERSITY OF VIRGINIA.

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BRIEF NOTICE OF THE RISE AND PROGRESS OF INTERNATIONAL HYGIENE.

By J. L. CABELL, M.D.,

Richmond, Va.

I DESIRE, Mr. President, to express some views on the subject of international hygiene which have suggested themselves to my mind in connection with the incidents of the recent International Conference of Washington.

It will be remembered that this Association adopted at the Richmond meeting in October, 1878, a resolution to this effect: "That it is the duty of the General Government to invite foreign nations to co-operate with it in the establishment of uniform and effective international quarantine regulations." The National Board of Health, created by an Act of Congress approved March 3, 1879, did not overlook this expression of the wishes of the Association, to whose active exertions it owes its establishment; but after a thorough investigation of the subject, including repeated consultations with prominent officials in both the legislative and executive departments of the government, it became satisfied that the United States could not, under judicial decisions heretofore considered conclusive, become a party to any treaty binding the government to enforce international quarantine regulations. For while it may be conceded, and is, I believe, generally conceded, that the federal authority may prevent infected or suspected vessels from entering any of the ports of the United States, the General Government has never claimed the right of granting free *pratique* to vessels in opposition to the wishes of the local authorities, who are the proper guardians of the public health in their respective localities.

Necessarily restrained by this consideration from taking any further steps in the precise direction specified in the resolution just cited, the National Board of Health, in concert with the committee of the National Academy of Sciences, which was required by law to co-operate with the Board, sought to obtain some of the ends contemplated by the Association, by recommending the call of an International Sanitary Conference to consider other subjects of sanitary interest than such as related to quarantine regulations. It was finally decided to ask for a conference which should only be invited to consider the means of establishing an international system of notification as to the sanitary condition of ports and places, and of vessels sailing therefrom. In accordance with this recommendation, the two houses of Congress, by a joint resolution, directed the President of the United States to call such a conference to meet in Washington, to which the several powers having jurisdiction of ports likely to be infected with yellow fever or cholera should be invited to send

delegates. Twenty-three States, in addition to Canada and the United States, responded to this invitation; and the conference was opened on the 5th of January, 1881. The Final Act was signed March 1, when the conference was closed. When the protocols, which have been ordered to be printed, shall have become accessible to the public, it will be seen that the delegates of the United States felt themselves constrained to oppose, by argument and by their votes, any and every measure which, however praiseworthy in itself, might be liable to the construction of transcending the limits of discretion implied by the terms of the joint resolution of Congress. Among other propositions to which they objected on the ground that their incorporation among the recommendations of the conference would probably endanger the success of the main object by overloading it with impracticable conditions, were several schemes of international sanitary commissions for the attainment of special ends of more or less interest and utility. They thus found themselves in the somewhat equivocal position of opposing measures which they approved in the abstract, and the adoption of which, if faithfully carried out, would mark a great and beneficent advance in international hygiene. I am glad, therefore, to seize an opportunity of placing myself *rectus in curia* on this subject, before the leading sanitary association of our country.

It can scarcely be necessary to advance formal arguments to set forth the manifold advantages of international sanitary commissions as means of advancing sanitary knowledge and of widening the sphere of its applications. I assume that it will be conceded, that, in selecting means for securing international interests, it is a logical consequence that prominence should be given to international instrumentalities. Especially does this principle seem to be applicable to the scientific investigation of the laws of epidemics, and of the means of arresting their spread beyond the limits of the primary foci in which they originate, or of the secondary centres in which they may have been accidentally established. To realize all the benefit that may be derived from such investigations relating to epidemics which are capable of existing under wide diversities of climate and soil, with perhaps somewhat correspondent differences of manifestation, it would seem to be indispensable that there should be a central commission of competent experts to analyze and collate the various observations, and to harmonize apparent discrepancies. My object, therefore, is not so much to vindicate the policy of international sanitary commissions, since none will question their value, as it is to indicate the gradual steps by which the views of intelligent sanitarians have been tending to assume a definite shape with regard to the ends for which such international instrumentalities may be usefully employed. M. Proust, in his instructive "Essay on International Hygiene, with Special Reference to its Applications against the Plague, Yellow Fever, and Asiatic Cholera," takes the position that, until the meeting of the International Sanitary Conference of Paris in 1851-52, there had never been concert of action between the different governments of the world in regard to quarantine regulations, and that international hygiene was then for the first time formally recognized and established.

He cites facts to show that, prior to this period of international discussions, the history of restrictive measures exhibited two distinct stages, marked by opposite errors of great magnitude. When a destructive epidemic visits a country for the first time, the populations are seized with a feeling of superstitious terror, and are disposed to seek protection by measures of barbarous cruelty. By a natural re-action against such an evil, people often go to the opposite extreme, and declare all quarantines to be as useless in respect of sanitation as they are annoying and mischievous by obstructing commerce and interfering with the personal liberty of travellers. It must indeed be admitted that restrictive measures are often so practised as to be justly liable to this criticism. The utter failure of severe quarantines and sanitary cordons organized on a vast scale in Russia, Prussia, and other points in Central Europe, to prevent the spread of cholera in 1830, naturally aided the re-action which discredited all such measures, and for a time threatened to abolish quarantines entirely. But the period was approaching when more rational views were to prevail, when a proper discrimination was to be made between quarantine badly applied and a rational system of observation and inspection, with such judicious applications of restrictive measures as would inflict far less injury on commerce than would result from an invasion of infectious disease. This third period, upon which most civilized governments have now entered in regulating their systems of maritime sanitary police, Proust justly designates the scientific period. It already counts many triumphs of sanitary surveillance, and is destined to win many more.

France had already shown, some years before the meeting of the first International Sanitary Conference at Paris, that the resources of preventive medicine, in respect of the exclusion from its territories of epidemics of exotic origin, could be immensely increased in efficiency by the use of means applied in or near the places of their birth.

Thus, most decided reforms were effected in 1847 and in 1849, on which latter occasion the Minister of Commerce and Agriculture, in a report to the President of the Republic, made this statement:—

“The ordinance of 1847 very materially modified the sanitary code of our country. It not only reduced the duration of quarantines and abolished them under certain conditions, on arrivals from Turkey and Egypt, when these countries were free from any pestilential epidemic, but it also established (and it is this which gives to the Act a peculiar importance), upon rational data, the new system of precautionary measures which it prescribed. Up to that period the precautions which had been taken against the introduction of the plague were not based upon any scientific observations: mere arbitrariness had for a great length of time determined the duration of quarantines. . . . While science casts so much light respecting the incubation and other features of the plague, an idea not less fruitful of good for the cause of sanitary reform was originated at the same time. Hitherto all defensive measures against the invasion of the disease had been organized merely on the sea-coast. It was now deemed to be both more simple and more logical to

extend the surveillance over the countries themselves where the disease took its origin. *This was done by the nomination of resident physicians by our government in Turkey and in Egypt, to examine into the sanitary condition of those countries, and to fix the bills of health to be given to vessels on their departure*,—a measure that was the more useful as it provided for the more or less speedy introduction of important modifications into the *régime* of sanitary superintendence.”

As already stated, these measures of a single government were soon followed by a suggestion of the same government of an International Conference which, in pursuance of this invitation, met in Paris in August, 1851, and which resulted in the International Treaty of May, 1853, between France, Portugal, and Sardinia.¹ But while it may be conceded that this was the first step taken with the distinct and avowed purpose of inaugurating a formal system of international hygiene, and that it owed its origin to the felt necessity for international co-operation to secure that completeness of protection against spreading epidemics which the action of isolated governments had failed to realize each for itself, it is nevertheless true that an important practical movement had been inaugurated in Egypt several years prior to the Conference of Paris, and that this movement involved the co-operation of the consular agents of the several European powers, with results of such a nature as to have a most important relation to the early history of international hygiene.

As early as 1831, Mehemet-Ali, the able and energetic ruler of Egypt, directed his attention to the importance of protecting the public health in his dominions by such measures of maritime sanitary administration as were then enforced by the governments of Europe. To this end he invoked the assistance of the body of European consuls in service at Alexandria. At the first

¹ In view of the common danger to all Europe of the introduction of the plague and cholera from the East, the Conference of Paris introduced into the convention, to be proposed to the several participating powers, “special provisions relative to Turkey,” assigning to the Superior Council at Constantinople the superintendence and direction of the necessary measures of public hygiene and health, but at the same time requiring that the powers interested should be represented on the council by a number of delegates equal to that of the Ottoman functionaries, and that such delegates should have a voice in the deliberations. These delegates—to be selected as much as possible from professional men—were to be appointed by their respective governments.

Among the provisions relative to the East generally it was required that “the number of European doctors now appointed as medical officers in the East shall be increased to twenty-six,” one of whom, with the title of central doctor, shall be stationed in each of the cities of Constantinople, Smyrna, Beirout, and Alexandria, the others to be distributed according to the plan annexed to the regulations. Their duties were prescribed to be: (1) to study, in relation to the public health, the climate, the diseases, and all the characteristics of the countries in which they were stationed; (2) to make tours of inspection in their respective districts as often as they might consider it advisable,—in Egypt as often as possible; (3) to communicate every thing relating to the public health to the central doctor of the district, the consular body, and, if need be, to the local authorities of the country twice a week in Turkey and every week in Egypt. In case of an epidemic or any other suspicious disease, as also in all extraordinary cases, the medical officer shall send without delay a special report to all the above-mentioned authorities, and to all the medical officers and consuls of

official meeting of this body, held in conformity with the expressed wish of the Viceroy, it was unanimously agreed that the consuls-general of the European powers should constitute an organization of public health, and should select annually five of their number to form a "Consular Commission of Health" under the presidency of one of its members, whose tenure of office should be one month, and who should be succeeded by the other members in regular rotation. The consul-general of France, selected as the first president, announced, in a paper read before the commission, and subsequently promulgated with the sanction and authority of the Viceroy, the motives which determined the latter to institute these measures of sanitary reform. In this "Note of the European Consuls" it was said,—

"His Highness the Viceroy, convinced of the advantages of every kind which would accrue to Egypt, in her political and commercial relations, from the establishment of lazarets and other sanitary institutions, such as Europe has enjoyed for so many years, has condescended of his own proper motion to invite the consuls of the European powers to indicate to him the measures to be taken in order to attain this end, and to submit to him a project for immediate execution."

In compliance with this request, the "Note" in question proceeded to specify in the first place the establishment of a maritime lazaret at Alexandria, which, as well as others that might be subsequently established by his Highness, should be organized and administered like those of Europe, adding, that, in order to assure and facilitate the organization of such establishments, the employés should be Europeans.

It was further added that a "Commission of Public Health," composed of

the neighboring districts, and, if necessary, to some doctors and consuls more distant, to whom such information might be useful.

It was further declared that these European doctors, appointed medical officers in the East, should be entirely independent of the local authorities, and only be responsible to the governments by which they were appointed.

The convention containing these provisions was signed by the representative of Turkey in the Conference of Paris, but was not ratified by the Turkish Government. Nevertheless, the Constantinople Board of Health (*Conseil Supérieur de Santé*) continued its operations under an organization nearly, if not quite, identical with that indicated in the articles of the convention, which organization had existed prior to the assembling of the conference. It had been "created by Sultan Mahmoud in 1840 for the special purpose of arresting the progress of the plague in Turkey. As restrictive measures were the means adopted to carry out the purpose, as funds were required to organize a staff to work with, and as the proposed measures were to be applied to persons and ships of every nationality, it became necessary, in consequence of the extra-territorial jurisdiction of foreigners in Turkey, to obtain the concurrence of all the foreign governments represented at the Porte. The Board of Health thus became a mixed commission composed of Ottoman members named by the Porte, and of foreign delegates appointed by the foreign powers. All sanitary questions and administrative matters concerning the health departments are discussed by the Board of Health, and resolved by a majority of the members present at the sitting. Such resolutions, however, require (except on great emergencies) the sanction of the Porte before they can be put in force."—*Dr. Dickson to the Right Hon. A. H. Layard, April 25, 1878, cited in Mr. Netten Radcliffe's Memorandum, etc.*

five members selected by the consuls of the European powers from among their own number, should be charged with the duty of sanitary administration as to current and daily transactions, except only when particular exigencies made it important to refer special questions to the entire consular body. The commission was to have exclusive authority in deciding as to the number of days of quarantine or of observation which should be exacted of vessels of all nationalities after the exhibition of their bills of health.

It thus appears from the terms of this "Note of the European Consuls," that, though this arrangement was originally suggested in the exclusive interests of the public health of Egypt, and had no reference to the protection of other countries, the employment of international agencies gave it *ab initio* an international character, which, in the sequel, asserted itself in so positive a manner as to imply the assumption of authority independent of the government which had created the commission. This, however, was effected by a somewhat gradual process. Thus in 1835 it was decided by the Consular Health Commission to substitute the office of a permanent head for that of a president changed every month, and this permanent officer was to be charged with the duty of directing the correspondence with the Egyptian Government and with the sanitary authorities of foreign countries concerning all that relates to international hygiene and to maritime quarantine. Two years later (August, 1837), at a meeting of the consular corps, attention was called to the disorders resulting from a new separation, under the special orders of the Viceroy, of the sanitary administration of Crete and Syria from that of Egypt; and the Consular Commission was instructed to represent to his Highness in the most energetic manner that it was expedient to centralize in the hands of the Consular Commission of Alexandria all power and all authority over the sanitary service of Crete and of the maritime provinces of the Levant under the jurisdiction of Egypt.

A year or two later, the government had occasion to request the Consular Sanitary Commission to dismiss one of its employés, who had made use of offensive expressions towards the government in an official report. This request was at first evaded; and, on a second and more peremptory demand by the Minister of Foreign Affairs and of Commerce, it was formally refused, the consular corps declaring, that, while it recognized the right of the government to approve or disapprove the nomination of the sanitary agents, it could not concede its right to dismiss them. This and some other incidents which threatened to give rise to unpleasant complications and dissensions between the local government and the consular agents of foreign powers, were met by a measure on the part of the government which might have been anticipated, although it appears to have taken the consular body by surprise. The Minister of Foreign Affairs, in a note addressed to the presiding officer of the consular commission, informed that body that his Highness the Viceroy was convinced that the sanitary administration, organized in his dominions with the generous assistance of the consuls of the European powers, could now be carried on by the local government itself, upon which rested naturally the direction of sani-

tary affairs for the benefit of the populations subject to its jurisdiction. It was, therefore, with great pleasure that his Highness found himself enabled to relieve the consular body from the gratuitous labors incidental to the sanitary service. His thanks were due, and were cordially given, to the consular agents for the aid and co-operation hitherto extended to the government; and they were assured that the new health board, to be immediately created, would follow the ways already established in respect of the relations of Egypt and its dependencies with foreign states. It was also stated that this board, under the presidency of the Secretary of State for Foreign Affairs and Commerce, would be composed of seven members, one of whom would be a special agent of the government, and the other six were to be selected from among the notable merchants, native and foreign, residing at Alexandria.

An order to this effect, announcing the names of the seven members, was promulgated on the 1st of January, 1840, and elicited, on the 4th of the same month, a formal protest on the part of the consular body, in which it was declared that they could not recognize the measure which the government had just taken, and that in no case would they consent to admit the authority of a sanitary board in which their body was not represented.¹ Nevertheless, Mehemet-Ali, who, by recent victories, had reached the culminating point of his power, disregarded for a time the protest of the foreign powers; but in 1843, owing to their continued refusal to recognize the authority of the new sanitary board, he was constrained to concede to them a certain participation in the deliberations touching questions of quarantine. Accordingly he consented that a delegate, representing each of the consuls of Austria, France, Great Britain, Greece, Prussia, Russia, and Sardinia, should be admitted to all the deliberations of a new board of health, but without the right of voting. This board continued to perform its functions with more or less satisfactory results during the remnant of the life of Mehemet-Ali, and during the brief reigns of his immediate successors, Ibrahim-Pacha and Abbas-Pacha.

Within this period several of the European governments sent sanitary commissions to investigate the manner in which quarantine administration was conducted by the Egyptian authorities. These commissions bore very favorable testimony to the fidelity with which quarantine regulations were enforced. Similar testimony was repeated in emphatic terms at the International Sanitary Conference of Paris by the Austrian and Turkish commissioners.

In 1865 Asiatic cholera was introduced into Europe by way of the Red Sea for the first time. The severity of the epidemic led to the adoption of quarantine measures by different states without concert, and without any well-digested system of regulations. The resulting injury to commercial interests suggested the idea of a diplomatic and medical conference to consider the

¹ For this and other statements of facts relating to the history of the sanitary administration of Egypt, the author of this paper is indebted to an admirable "*Aperçu historique de l'Organisation de l'Intendance Générale Sanitaire d'Égypte séant à Alexandrie depuis sa fondation en 1831, sous le règne du Grand Vice-Roi Méhémet-Aly jusqu'à la fin du règne du Khédivé Ismail en 1879.*" Par le Dr. NÉROUTSOS-BEY."

means of preventing the recurrence of such sanitary and commercial disasters. Here, as before in 1850, France led the way, and suggested the Conference of Constantinople, which was opened in that city in February, 1866, and continued its sessions for about seven months. During this prolonged session the subject of cholera as an imported epidemic was exhaustively considered in all the aspects which relate directly or indirectly to practical measures of prevention, such as the questions relating to the origin and place of birth of cholera, its endemicity and epidemicity in India, those relating to its transmissibility, and the conditions of its propagation, and especially the questions touching the danger of the importation of the disease by pilgrims returning from Mecca. In this latter connection it was decided to establish, under international auspices, posts of observation on the shores of the Red Sea, to be occupied by competent sanitary physicians selected for the purpose. It was also required to establish lazarets at two separate stations, and to organize an international commission to sit at Suez, which should decide all questions concerning the sanitary service of the Red Sea.

While these measures of a formally recognized International Sanitary Service were being put into execution, the Sanitary Council of Egypt itself underwent a progressive change which gave it more and more of an international character. It had now come to have only four or five representatives of its own government, while there were twelve delegates of foreign powers; but it should not be forgotten, that, long before the European powers had taken any steps looking to international co-operation, the great Viceroy of Egypt had taken the initiative in the practical application of international hygiene by a system which was already in beneficent operation when France proposed the Conference of Paris in 1850, and which continued without change after the adoption by France, Portugal, and Sardinia of a convention based upon the conclusions of that conference.

Some of the foregoing facts serve to show how many practical difficulties environ every attempt to secure efficient international co-operation in the execution and enforcement of sanitary regulations by international agencies operating within the jurisdiction of an independent state, even when the right to exercise such international authority has been conceded by the territorial government.

There are, however, other functions which may be assigned to an international sanitary commission without incurring the risk of wounding national susceptibilities. Thus the Sanitary Conference of Vienna recommended a plan of sanitary work, with a view to the scientific investigation of the causes of cholera, and the means of combating them, by an international commission of experts in sanitary science.

This conference was the result of the re-appearance of cholera in Turkey, whence it spread over Europe from 1871 to 1873. It deserves notice, that, though the disease appeared simultaneously in Turkey and in the Hedjaz, its introduction by way of the Red Sea was effectually prevented by the measures put into operation in accordance with the recommendations of the

Conference of Constantinople in 1866. The appearance of the disease in Alexandria was traceable to an importation *from Europe*, and not from the Red Sea.

The Vienna Conference was opened on July 1, 1874, and closed its sessions on the 1st of August. With one or two exceptions, applying exclusively to the delegation of Austria-Hungary, the *personnel* of the conference consisted of medical men representing nineteen European states, and the governments of Egypt and Persia. After adopting conclusions¹ nearly identical with those of the Conference of Constantinople, and expressing a desire that a penal code applicable to violations of sanitary laws should be promulgated in the Ottoman Empire, the Vienna Conference voted a project for the creation of a permanent international commission, with a view to the scientific study of epidemic diseases. It was prescribed by the second article of the project that the duties of the commission should be purely scientific, and that, while not excluding other epidemic diseases, its principal task should be the study of cholera with respect to etiology and prophylaxis. The same article assigns

¹ The "first part" of these conclusions relates to scientific questions as follows:—

I. "Asiatic cholera has its origin in India, and its appearance in other countries is always the result of importation. It does not become endemic in any other country." *Adopted unanimously.*

II. Questions relating to the transmissibility of cholera.

(1) Transmissibility by man.

"The conference accepts the fact of the transmissibility of cholera by human beings coming from an infected locality. It does not consider that man can become the specific cause, except under the influence of an infected medium; but he may be the means of propagating cholera when he comes from a place in which the germ already exists." *Unanimously adopted.*

(2) "Cholera may be transmitted by clothing carried from an infected locality, and especially by such as had been worn by persons suffering from the disease. It further appears that the disease may be conveyed to great distances by clothing kept in closed boxes, and not exposed to the air." *Unanimously adopted.*

(3) Transmissibility by food and drinks.

(a) "As to food, the conference, not having positive proof, abstains from pronouncing a decision." *Ayes, 11; noes, 7.*

(b) "Cholera may be propagated by drinks, especially by water." *Unanimously adopted.*

(4) Transmissibility by animals.

"There is no positive proof of the transmission of cholera from animals to man, but it is rational to admit the possibility of such transmission." *Ayes, 10; noes, 2. Abstained from voting, 6.*

(5) Transmissibility by merchandise.

"While unanimously recognizing the absence of proof in support of the transmission of cholera by merchandise, the conference admits the possibility of the fact under certain conditions." *Ayes, 13. Abstained from voting, 5.*

(6) Transmissibility by the cadaver of a person dead of cholera.

"Although such transmission has not been conclusively proved, it is prudent to consider this as a source of danger." *Unanimously adopted.*

(7) Transmissibility by the atmosphere alone.

"There is absolutely not a single fact which would go to prove that cholera can be propagated to a distance by the atmosphere alone, whatever may be its condition. Moreover, it is a law without exception that no epidemic has ever passed from one locality to

to the commission the duty of calling international sanitary conferences when considered to be expedient, and to prepare the programmes for such conferences. By the third article it is required that the commission shall be composed of medical delegates appointed by the participating governments, and that there should be at Vienna a fixed bureau charged with the duty of centralizing the work, and carrying into execution the deliberations of the general commission. The fourth article refers to the mode of raising the funds necessary for defraying the expenses of the commission by an assessment on the different states, to be regulated by diplomatic arrangement. The fifth article prescribes the establishment of temporary missions or of fixed sanitary posts under the direction of resident physicians in those countries which do not have an organized sanitary service. And finally, in an "additional article," the desire is expressed that an International Council of Health, similar to those of Constantinople and Alexandria, might be established in Persia, both to ameliorate the sanitary condition of that country, and, at the same time, to

another in a shorter time than would have sufficed for the transportation of human beings.

"The surrounding air is the principal vehicle of the cholera-poison; but its capacity to transmit the disease is, in the immense majority of cases, limited to a very short distance from the focus of emission.

"The alleged instances of its transportation by the atmosphere over a distance of one or more miles are not sufficiently attested." *Unanimously adopted.*

(8) Influence of the air on the transmissibility of cholera.

"In the open air the cholera-poison rapidly loses its morbid activity, as a general rule; but, under certain special conditions of close confinement, its activity may be preserved during an indefinite time.

"Great deserts are an effective barrier against the propagation of cholera. There has been no example of its importation into Egypt or Syria, across the desert, by caravans from Mecca." *Unanimously adopted.*

III. Duration of the period of incubation.

"In almost all cases the period of incubation, from the date of exposure to the commencement of the premonitory diarrhœa, does not exceed a few days. All the alleged instances of a more prolonged incubation are inconclusive, either because the premonitory diarrhœa was included in the incubative period, or because the actual contamination may have occurred after departure from the infected locality.

"Observations prove that the premonitory choleraic diarrhœa, which must not be confounded with all the diarrhœas which exist in the time of a cholera epidemic, does not last over a few days. The alleged exceptional cases have not been proved to be truly choleraic, and to be susceptible of transmitting the disease." *Ayes, 13; no, 1. Abstained from voting, 4.*

IV. Questions relating to disinfection.

(1) "Are there any known means or processes of disinfection by which the cholera-poison may be *certainly* destroyed, or be shorn of its intensity?" *Noes, 12. Abstained from voting, 7.*

(2) "Are there any known means by which it may be *probably* destroyed or weakened in intensity?" *Ayes, 13; noes, 5.*

(3) "As there are no certain and specific means of disinfection known to science, the conference recognizes the great value of such hygienic measures as aëration, thorough washings and cleansing, etc., combined with the use of agents actually possessing disinfectant properties." *Adopted unanimously.*

serve as a potential means of preventing the invasion of Europe by epidemics from that quarter.

Notwithstanding the unanimous recommendation by the conference, the International Commission, with duties thus outlined, has never yet been established.

The next effort to secure international co-operation in regard to the prevention of the spread of contagious and infectious diseases, was the conference at Washington, to which allusion was made in the opening of this paper.¹

This conference, looking beyond the specific ends contemplated by the joint resolution of Congress, recommended the appointment of two distinct international commissions, one of which was, indeed, to be charged with the duty of collecting information from all parts of the globe, and of notifying to the several governments the existence of contagious or infectious diseases wherever they might appear. It is referred to in the fourth resolution of the Final Act of the conference in these terms:—

“A centralized international system of sanitary notification being deemed indispensable to the successful carrying out of the measures for preventing the introduction of disease, it is advisable to create international organizations to be charged with the duty of collecting information in regard to the outbreak, spread, and disappearance of cholera, yellow fever, the plague, etc., and of conveying such information to the parties interested.”

In the draft of a convention to carry out the objects of this plan, it is prescribed that there shall be established in Vienna and Havana a permanent International Sanitary Agency of Notification,—the former to gather sanitary information from Europe, Asia, and Africa; the other agency, at Havana, to extend its sphere of action to the American continent and the islands belonging geographically thereto.

The details of this plan show it to be both cumbrous and costly: and, believing that its incorporation in the Final Act as the basis of a future convention between the several powers would endanger the success of the whole enterprise, the delegates of the United States opposed its adoption with much earnestness; but they were outvoted.

The other proposition, relating to the appointment of an international commission, is found in the eighth article of the Final Act, by which it was decided that a temporary and scientific commission shall be created by the nations most interested in protecting themselves against yellow fever, and by such others as may wish to take part in this arrangement, to be charged with the duty of studying all matters pertaining to the origin, development, and propagation of that disease.

This proposition—so similar in its purpose to an early effort made by the National Board of Health to investigate the causes and nature of yellow fever

¹ This statement seems to require qualification. The International Congress of Hygiene at Brussels in 1875 had adopted a *projet*, proposed by Dr. Thomas Belval, for a general organization of public hygiene, including both a national and international organization. A short notice of this scheme will be given farther on in this paper.

in its principal endemic focus (namely, Havana) by means of a temporary scientific commission appointed by itself, but aided to some extent by an auxiliary commission nominated by the Governor-General of Cuba — received the cordial assent of the American delegates. They concurred also in the draft of a convention to carry out this object ; which draft contains, among other provisions, the following items of inquiry : —

“*A.* The study and determination of the principal and permanent centres of the pathogenic germs of the disease.

“*B.* The conditions which favor its development as well as the causes and circumstances which aid its propagation in these centres, and its transmission into other countries.

“*C.* The means to be employed in order the more and more to circumscribe its effects, or even to eradicate the disease entirely from the regions in which it originates, and from the secondary centres of invasion.

“*D.* The surest means of preventing its transmission by vessels at sea.

“*E.* The best and most practical methods of disinfection of ships, their cargoes and passengers.

“*F.* Every thing which relates to the prophylaxis and treatment of the disease.”

A proposition for a scientific commission with the same ulterior object as the plan just cited, but largely amplified in the sphere and scope of its operations, was submitted by the special delegate of Portugal, and, although not adopted by the conference as a part of its conclusions, was permitted to be published along with the Final Act, as an appendix to the same, and was signed by all the medical and some other special delegates. This proposition recommends the creation of twenty-two international sanitary posts for the study of yellow fever, in each of which there should be at least two physicians, — one belonging to the country, the other to some of the countries with which the post or place has the largest commerce. All other nations will have the right to send sanitary physicians to these posts. The posts should be provided with all the instruments necessary for a thorough scientific investigation of the disease, such as microscopes, chemical apparatus, instruments for determining meteorological conditions, etc.

Monthly reports are to be transmitted to the governments which have appointed these sanitary agents, as also an annual report in duplicate, of which one copy shall be transmitted to the appointing governments, and the other presented to the Conference of Sanitary Physicians, which shall be held once a year in different places in rotation.

I apprehend that this scheme, so comprehensive and complete, will be regarded as too complex and expensive to meet with much favor from other than medical men.

After the conference had, by a small majority, voted a proposition offered by the delegate of Italy, but not approved by the delegates of the United States, a compromise measure, suggested by the French minister, was permitted to be inserted in the Final Act, as the report of a minority, and was signed by the delegates of Belgium, France, Russia, Turkey, and the United States.

The propositions of this minority scheme are as follows : —

“1. In those countries where the regulations provide that vessels should be furnished at the moment of departure with a bill of health, delivered by the local authorities, this bill of health shall continue to be delivered by those authorities ; but the captain of the vessel is at liberty to have said bill of health *visé* by the consul of the country of destination, who will be obliged to give it with the least possible delay. The consul shall have the right to add to his *visé* any observation he may judge necessary.

“If the vessel is not obliged to take a bill of health from the local authorities, the captain can ask for one from the consul of the country of destination, who shall be obliged to deliver said bill to him with the least possible delay.

“2. In those countries the regulations of which require that the vessels, before obtaining a bill of health from the local authority, should be submitted to a sanitary inspection, the consul of the country of destination or his delegate shall always, at the demand of the captain, assist at this inspection.

“If the vessel is not required to have a bill of health, to be delivered by the local authority, the consul from whom the captain shall ask for this bill of health, or his delegate, can make that inspection in conformity with rules to be established by common agreement between the respective governments ; but, in such cases, the inspections shall be made in concert with the consul of the country of the nationality of the vessel.”

In offering these propositions, M. Outrey spoke as follows : —

“At the last meeting, the conference adopted, by a majority of four votes, a proposition relating to bills of health and the inspections of vessels ; and no one, of course, would think of reconsidering this vote : but some of us have remarked with regret that the vote showed that the powers most interested in establishing an agreement with their immediate neighbors were not of the same opinion on these two important questions. These observations, it is hardly necessary for me to say, apply more particularly to the United States and Spain ; and all must understand that the principal object of this conference cannot be attained by the adoption of any international agreement to which these two countries, and the States bordering on the Gulf of Mexico, whose maritime communications are so frequent, cannot accede.

“The question of protection against epidemical disease applies more especially to the coasts of the United States, Cuba, and Mexico, which are so near each other ; and it is in regard to them that the greatest precautions will have to be taken. These considerations have induced some of us to see if we cannot find a new formula which would attain the object which the United States had in view in calling this conference. There can be, in our opinion, a medium between the American proposition, which is to take away from the territorial authority of the port of departure all right of intervention in what relates to the bill of health and to the inspection, and that proposition of the delegate of Italy, which declares in an absolute manner that this bill is to be delivered by this authority. Some of my colleagues and myself have hoped to solve the difficulty by submitting a proposition to which, I am happy to say, the delegates

of the United States have given their consent. It is in the name of my colleagues of the United States, Russia, Turkey, and Belgium, and in my own name, that I ask the conference to permit the insertion in the protocol of a new proposition, which will be considered the expression of the views of the minority. We would be well pleased should this proposition serve as the basis of agreement between the different States, the territories of which are often threatened by epidemic diseases."

At first view, it might be considered that but little was gained by leaving it to the discretion of the captain whether to obtain the *visé* of the consul of the country of destination; but a little reflection will suffice to show that inasmuch as the captain will find it necessary to put himself in accord with the authorities of the port of destination, the apparent discretion is really tantamount to an obligation, in all those cases at least in which the consular indorsement will be required by these authorities, as, for example, it is required for the ports of this country by an Act of Congress.

When the proposition of M. Outrey had been read, the delegate of Spain (M. de Vigo) stated, "that although he approved the proposition of the delegate of Italy, for which he had voted, and to which he had added an amendment, he would nevertheless be willing to submit to the consideration of his government the proposition of the delegates of the United States, Belgium, France, Russia, and Turkey, which had just been presented. He added that his government had always wished to entertain cordial intercourse with the United States and other powers; and he hoped, therefore, that his government would look favorably upon a proposition thus presented in a spirit of compromise, in order that an understanding between the powers interested may be arrived at."

We need only fix our attention upon a few of the salient points in the foregoing narrative to recognize distinct evidences of a gradual and progressive advance of international hygiene throughout the entire period included in the narrative. Compare, for example, the elaborate code of international quarantine regulations forming the articles of a convention which grew out of the deliberations of the International Sanitary Conference of Paris, — a convention ratified by only three of the twelve participating powers, and quietly dropped by these three at the end of the first five years, with the practical and beneficent reforms in the organization of the sanitary service of the East achieved by the Conference of Constantinople in 1866, — and one cannot but be struck with the definiteness of purpose and the judicious adaptation of means to ends which characterize the conclusions of the later conference as compared with its predecessor.

With still greater emphasis may this be said of the admirable discussions of a later international sanitary conference which was held at Vienna in 1874, discussions in which we note the distinguished names of Pettenkofer, Hirsch, Sigmund, Fauvel, Proust, Dickson, Seaton, Semmola, and others, as earnest participants. It is true that the recommendation of a permanent sanitary commission, adopted with great enthusiasm and by a nearly unanimous vote,

has not been carried out ; but this fact is probably explained, in part, at least, by political complications which occurred shortly after the adjournment of the conference.¹

Warned, however, by the results of experience, our own government, in calling the new sanitary conference at Washington, had a more modest aim, and, recognizing the essentially local character of quarantine, expressly disavowed any purpose of desiring to establish a system of international quarantine regulations. It aimed only to secure an international agreement as to the means of obtaining accurate and trustworthy information concerning the sanitary condition of foreign ports at which infectious diseases were likely to exist, and of the vessels sailing therefrom to the ports of other countries, leaving each nation to carry out its own sanitary regulations. Its delegates, though outvoted on some points of detail, were successful in obtaining a general recognition of the principle for which they contended, that the accredited agents of each government should have facilities for verifying the statements which would be contained in the bill of health delivered by the local authorities of foreign ports, and *viséd* by its own agents. They were successful, too, in obtaining the adoption by the conference of a form of bill of health submitted by themselves, which form requires the authority which delivers it to furnish the most precise and detailed information as to the sanitary condition of the port and the surrounding country, and of the vessel, its cargo, passengers, and crews, — all this, too, not in general terms, but under specified heads so numerous and so particular as to make it almost impossible to mislead the authorities of the port of arrival, except by wilful misrepresentation and fraud on the part of those who furnish the bill.

Here, too, we note progress ; and if an international treaty should be formed on the basis of the resolutions which constitute the Final Act of the Conference of Washington, including the proposition for the creation of a temporary international scientific sanitary commission for the study of yellow fever

¹ As exemplifying the gradual advance of doctrine on a sanitary question of the utmost importance, obtained, in part, at least, by means of discussions in International Sanitary Conferences, the reader is referred to the successive changes of opinion on the subject of the dissemination of cholera as lucidly stated in a Memorandum by Mr. Netten Radcliffe on Quarantine in the Red Sea, and on the Sanitary Regulation of the Pilgrimage to Mecca in a supplement to the Ninth Annual Report of the Local Government Board, 1879-80, pp. 129-135.

In further illustration of the asserted progress in practical international hygiene, we may refer to the action of the conferences of Constantinople and Vienna in regard to pilgrims. Thus "the International Sanitary Conference of 1866 held that pilgrims and pilgrim-ships must be subjected to special sanitary regulations ; and the Conference of Vienna (1874) excluded pilgrim-ships from their general suggestions as to quarantine, on account of the peculiar dangers which presumably attached to them, and relegated to the authorities of the ports where they put in or touched at, the duty of taking such precautions as the latter thought fit. This suggested exemption of pilgrim-ships from the ordinary rules of quarantine must be had in mind. It appears to be inseparable from the nature of the pilgrim traffic ; and Egypt, in carrying out such regulations as she thinks best with regard to this traffic in her own ports, and Turkey also in her ports, are acting in full accord with the conclusions of the conferences of both 1866 and 1874." — *Mr. Netten Radcliffe, loc. cit.*

in the places of its endemicity and epidemicity, the work of that conference will mark a notable epoch in the history of international hygiene.

An effort was made by Mr. Edward Sève, delegate of Belgium, to procure the indorsement by the conference of a proposed general organization of public hygiene, which had been successively adopted by the International Congress of Brussels in 1875, and that of Amsterdam in 1879. The scheme in question included both a National and an International Organization, and both were very comprehensive and complete. But the conference refused to order the insertion of this plan of General Sanitary Organization in an appendix to its Final Act, partly because it was foreign to the special object for which the conference had been called, and partly because Mr. Sève's motion for such insertion was made at a late hour of the last session of the conference, when its adoption would have been claimed as a precedent for similar motions by some other delegates. The plan was, however, ordered to be printed in full in the protocol of that day's session. I cite that part which relates to the International Organization, which was to comprise, —

"1. The frequent and regular exchange of communications between the superior sanitary boards of the various countries. These communications would bear principally, —

"*A. a.* Upon the means used to improve the sanitary conditions of the various localities and of their population ;

"*b.* Upon the hygienic measures adopted with a view to mitigating the effects of endemic diseases ;

"*c.* Upon the precautions adopted for the purpose of preventing the importation of epidemic or contagious diseases ;

"*d.* Upon the appearance of foci of endemic diseases ;

"*e.* Upon measures adopted to combat epizootics.

"*B.* Upon the results obtained in each of these cases.

"*C.* Upon the statistical data collected or to be collected with a view to elucidating the problems of public hygiene.

"2. The periodical meeting of International Sanitary Conferences."

Although, for the reasons stated, the Conference of Washington did not especially indorse this plan, I consider the adoption of its principles by two successive International Congresses in Europe an evidence of a growing tendency on the part of the leading sanitarians of the civilized world to recognize the need and the value of an organized system of international hygiene.

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